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PROGRESS ON REDUCING BLACKBIRD DAMAGE TO SUNFLOWER: STATUS OF AVICIDE RESEARCH

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Introduction

Production of sunflower in the northern Great Plains has increased from a few thousand acres in the early 1960's to about 2.5 million acres in the 1990's. Ripening sunflower and other grain crops in the region can be severely damaged by migrating blackbirds in late-summer. Overall damage is about 2% of the crop, with 23% of the sunflower growers suffering in excess of 5% sunflower damage.

Periodically, blackbirds are counted in North Dakota. The statewide population of blackbirds is about 2.8 million breeding pairs. Each pair of birds produces about 2 young, swelling the local population to 8.4 million birds in late-summer. Much of the early sunflower damage is caused by these 'home-grown' birds. In September, an additional 17 million blackbirds migrate from northern breeding areas and cause further damage to crops. Many of these blackbirds migrate to the southern U.S. where they also damage rice. After wintering in the southern U.S., blackbirds return to sunflower growing areas through east-central South Dakota, where several major roost concentrations are located during the spring migration before dispersal to breeding territories.

From 1993 to 1996, bird damage surveys were conducted in Stutsman County, North Dakota. Annual total damage in this county was about $300,000 (@0.22/kg). If damage in Stutsman County was typical, sunflower growers forfeited about $3.4 million/year in North Dakota and $1.5 million/year in South Dakota to bird depredation. Moreover, the cost of resources (e.g., vehicle, ammunition, scare devices and people) needed to protect fields from blackbirds was expensive. Growers and government agencies are using non-lethal techniques (e.g., airplane hazing, propane cannons, habitat management) to reduce blackbird damage. However, methods developed thus far have limitations of costs, logistics, and effectiveness.

Status of Avicide Research

The avian toxicant, DRC-1339 (3-chloro-4-methylbenzenamine HCL), is used for controlling blackbirds because of its high toxicity to blackbirds and low toxicity to nontarget species. Trained U. S. Department of Agriculture/Animal and Plant Health Inspection Service/Animal Damage Control personnel in Louisiana and Texas use DRC-1339-treated rice to reduce local blackbird populations responsible for damaging rice. After six years of research, use patterns were finalized and a carefully monitored operational baiting program began in 1996. Intensive research has established that risks to nontarget species are minimal in areas baited with treated rice baits. In particular, game birds such as ring-necked pheasants are not present in the bait areas.

In February 1995, the Environmental Protection Agency issued a Section 3 label for 'Compound DRC-1339 Concentrate-Staging Areas' for bird damage control. This label does not allow cattle grazing or harvesting of crops on a baited area for at least one year after the last baiting with DRC-1339. The National Wildlife Research Center (NWRC), Fort Collins, Colorado, is planning a study that will address the question of how much (if any) DRC-1339 is absorbed by growing plants. Favorable results may allow the Environmental Protection Agency to reduce the waiting period between use of the chemical and harvesting of crops to 30 days.

A two-pronged research strategy was explored for using DRC-1339 avicide for reducing bird damage to sunflower.

One strategy was to bait blackbirds in ripening sunflower fields as they migrate south in late-summer. Unfortunately, research showed that sunflower damage was not reduced by killing blackbirds in these fields. The blackbird's preference for ripening sunflower, the inability to predict daily feeding patterns, the need to destroy sunflower to treat bait areas, the constant influx of migrating blackbirds, and logistical problems make effective baiting regimes costly and difficult to carry out during this time of year. A second strategy was to bait spring-migrating blackbirds as they move north to nest in the Dakotas. Killing some of these birds may reduce sunflower damage in late-summer by reducing breeding populations.

Since March 1993, the NWRC-Great Plains Field Station (NWRC-GPFS), in cooperation with North Dakota State University, has been conducting research in east-central South Dakota designed to test baiting strategies and quantify the nontarget hazards of DRC-1339 -treated rice at bait plots on fields harvested the previous fall. Much has been accomplished during this time. A baiting strategy that involves placing baits in relatively small areas (0.8-1.2 ha) near known blackbird roosts sites has been developed. Placing toxic baits in these small plots has many advantages including increased cost-effectiveness and reduced chances of harming nontarget birds, such as the ring-necked pheasants. On several occasions, up to 20,000 blackbirds were observed foraging in these small bait plots. Since 1993, the NWRC-GPFS has obtained the necessary scientific collecting permits for an annual kill of 250,000 blackbirds. This number is sufficient for assessing the risks of DRC-1339 to nontarget birds. After the nontarget risk assessment is completed, additional birds may need to be killed to fully evaluate the effects of a baiting program on sunflower damage level.

Field studies showed that 25 bird species visited harvested fields during the spring, and laboratory results indicate that ring-necked pheasants could be at some risk from DRC-1339. Based on consultations with various federal and state agencies, the NWRC-GPFS and NDSU plan to answer questions related to primary hazards of DRC-1339 to nontarget birds, particularly pheasants. Although research has shown secondary hazard risks associated with DRC-1339 are minimal, federal and state agency personnel have requested that we document the animals that are likely to eat bird carcasses. Retriever dogs will be tested for augmenting searches for dead birds, and the number and kinds of wildlife scavenging on dead blackbirds will be documented. A study documenting the effects of DRC-1339-treated rice baits on the abundance of pheasants in the baited area will be conducted by South Dakota State University from 1998-1999. If data from these studies show that DRC-1339-treated rice bait is efficacious with little or no risk to nontarget species, an Environmental Assessment (EA), as required by the National Environmental Policy Act, will be completed. The EA will evaluate the potential environmental effects of an operational use of DRC-1339 for reducing blackbird damage to sunflower during a three-year trial baiting program. Breeding blackbirds will be counted in sunflower growing areas, and the amount of sunflower damage incurred during the trial will be compared to baseline data.